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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/586,392 | 07/17/2006 | Ulf Hagg | 1515-1042 | 2551 |

466 7590 01/13/2010
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| EXAMINER |
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WU, IVES J

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| ART UNIT | PAPER NUMBER |
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1797

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| NOTIFICATION DATE | DELIVERY MODE |
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01/13/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/586,392 | Applicant(s) HAGG ET AL. | |
| | Examiner IVES WU | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

(1). Applicants' Amendments and Remarks filed on 11/10/2009 have been received.

Claims 1-15 are amended.

The objection of Specification, claim 9 in prior Office Action dated 11/10/2009 is withdrawn in response to the current Amendments.

The rejections of claims 1-15 are revised in response to the present Amendments.

Specification

(2). The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

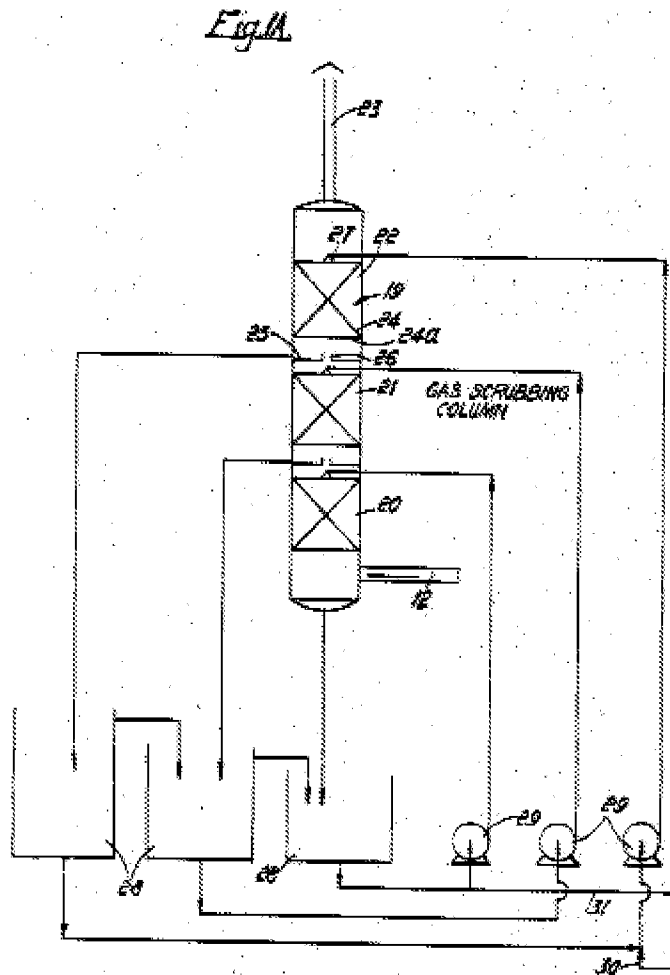
In claims 3-9, 11-15, it recites: **corresponding** ring-shaped fluid storage tank. It is not disclosed in Specification.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(3). **Claims 1-3, 11** are rejected under 35 U.S.C. 102(b) as being anticipated by Warner et al (US 3528220).

As to a scrubber for the cleaning of gases comprising: a scrubber tower; a plurality of scrubber stages (1-4), each arranged in the scrubber tower with different ones of the plurality of scrubber stages at different levels above each other in the scrubber tower in **independent claim 1**, Warner et al (US 3528220) disclose avoidance of air pollution in the manufacture of glass fiber products (Title). It is further shown in the Figure below, the gas scrubbing column has polluted air stream inlet 12, three scrubbing stages 20, 21 and 22 arranged as claimed.



As to wherein at least one of the plurality of scrubber stages (2-4) above a lowest one of said plurality of scrubber stages (1) comprises a ring-shaped fluid storage tank (10,15,20) arranged inside the scrubber tower and is arranged surrounding a central channel (9, 14, 20) through which the gas that is to be cleaned can pass upward in **independent claim 1**, as shown in the Figure above, the liquid collecting tray 25, and chimney riser 26 are read on the limitations as claimed.

As to wherein each of the plurality of scrubber stages (2-4) above the lowest of the plurality of scrubber stages comprises the ring-shaped fluid storage tank located inside of the scrubber tower in **claim 2**, as shown in the Figure above, it contains features as claimed.

As to further comprising a circulation pump at each of the plurality of scrubber stages and arranged to feed fluid through feed pipes present in the corresponding ring-shaped fluid storage tank from the corresponding ring-shaped fluid storage tank at the bottom of the scrubber stage to spray beams arranged at the upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the upwards gas flow in **claim 3**, as shown in the Figure above, the three circulation pump and spray 27 which reads on the limitations as claimed.

As to further comprising a circulation pump at each of the plurality of scrubber stages and arranged to feed fluid through feed pipes present in the corresponding ring-shaped storage tank from the corresponding ring-shaped fluid storage tank at the bottom of scrubber stage to spray beams arranged at upper part of the scrubber stage for distribution over the cross-section of the scrubber in a direction against the upwards gas flow in **claim 11**, as shown in the Figure above the liquid collecting tray 25 at bottom of the scrubber stage and spray 27 as well as the piping line (not numbered) to the spray 27, which read on the limitations as claimed.

Claim Rejections - 35 USC § 103

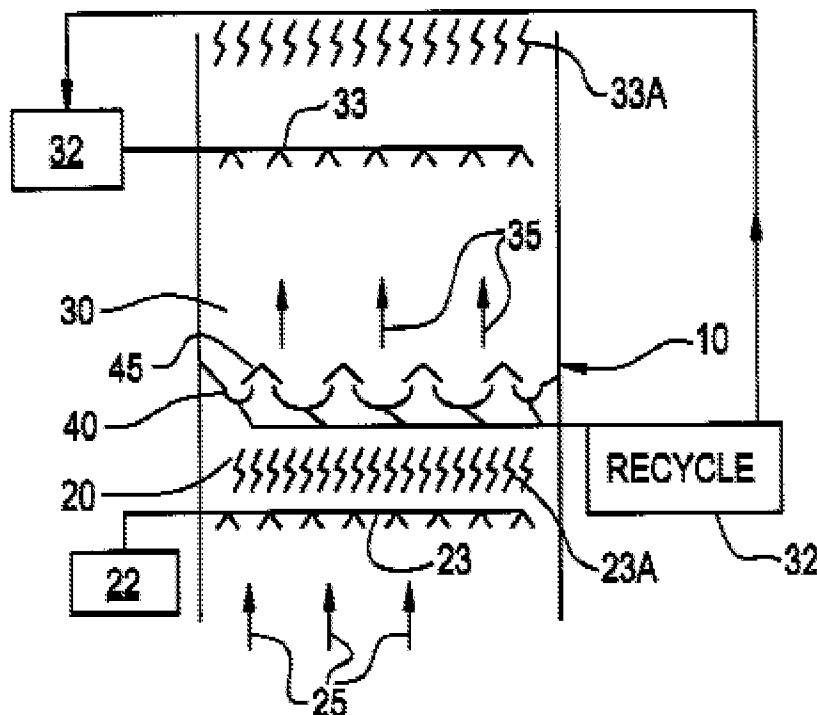
The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(4). **Claims 4-5, 12-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al (US 3528220) in view of Nolan (US 6399030B1).

As to further comprising a separation trough at bottom of each of the plurality of stages of the scrubber above the lowest one of the plurality of scrubber stages and arranged separating the fluid from the upwards flowing gas and leading the fluid to the ring-shaped fluid tank in **claim 4**, wherein separation trough comprises obliquely placed laminae leading the fluid that arrives from one of the plurality of scrubber stages disposed above the separation trough to trough channels arranged under the laminae, and the trough channels lead the fluid onwards to the corresponding ring-shaped fluid tank in **claim 5**, Warner et al (US 3528220) disclose each zone containing Glitsch Grid packing 24 supported on a baffle plate 24a and has a liquid-collecting tray 25 at its base. Warner et al do not teach troughs as claimed.

However, Nolan (US 6399030B1) teaches combined flue gas desulfurization and carbon dioxide removal system (Title). As shown in the Figure 1 below, it contains a series of baffles and drains 40. One or both of the drains 40 and baffles 45 may be oriented at an inclined angle toward a front or back of the wall of the vessel 10 to improve drainage of the 2nd reagent 32 from the vessel 10 for recycling (Col. 3, line 6-20).

FIG. 1



The advantage of baffles and drains is to provide a simple, mechanical separator between the gas separation processes within the vessel (Col. 2, line 4-6).

Therefore it would have been obvious at time of the invention to install the baffles, drains of Nolan for the baffle plate for each scrubber stage in the vessel of Warner et al in order to attain the advantage cited above.

As to wherein the circulation pump is connected to the corresponding ring-shaped fluid storage tank and located at essentially the same level as the corresponding ring-shaped fluid

Art Unit: 1797

storage tank in **claims 12 and 13**, the disclosure of Warner et al is incorporated herein by reference, the most subject matters as currently claimed, has been recited in Applicants' claim 6, and has been discussed therein.

As to wherein the circulation pump is arranged on ground outside of the corresponding ring-shaped fluid storage tank and outside of the scrubber tower, and connected by means of an inlet pipe to a connector on the corresponding ring-shaped fluid storage tank in **claims 14 and 15**, the disclosure of Warner et al is incorporated herein by reference, the most subject matters as currently claimed, has been recited in Applicants' claim 9, and has been discussed therein.

(5). **Claims 6-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner et al (US 3528220).

As to wherein the circulation pump is arranged connected to the corresponding ring-shaped fluid storage tank and located at essentially the same level as the ring-shaped fluid storage tank in **claim 6**, Warner et al (US 3528220) disclose the liquid collecting in the trays 25 draining into respective tanks 28 whence it can be re-circulated by pumps 29 to the respective spray (Col. 4, line 65-67). It would be obvious to have circulation pump at same level of liquid collecting tray because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to wherein the circulation pump being arranged outside of the corresponding ring-shaped fluid storage tank and outside of scrubber tower, and is connected by means of an inlet pipe to a connection on the corresponding ring-shaped fluid storage tank in **claim 7**, as shown in the Figure above, the recirculation pumps are outside of the liquid collecting tray and a pipe is shown for the connection, it would have a connector for the connection between the liquid collecting tray and pipe for the convenience of maintenance as well known in the art of engineering practice. Also, it would place the pump on the ground because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to further comprising a pump tank arranged outside of the corresponding ring-shaped fluid storage tank and outside of scrubber tower directly connected to the corresponding ring-shaped fluid storage tank through a connection and that the circulation pump is arranged in or

Art Unit: 1797

connected to the pump tank in **claim 8**, as shown in the Figure above, the tank 28 reads on the limitations as claimed.

As to wherein the circulation pump being arranged on the ground outside of the corresponding ring-shaped fluid storage tank and outside of the scrubber tower, and connected by means of an inlet pipe to a connector on the corresponding ring-shaped fluid storage tank in **claim 9**, as shown in the Figure above, the recirculation pumps are outside of the liquid collecting tray and a pipe is shown for the connection, it would have a connector for the connection between the liquid collecting tray and pipe for the convenience of maintenance as well known in the art of engineering practice. It would place the pump on the ground because of rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

As to wherein the feed pipe feeding the fluid to the spray beams being located inside an outer surface of the scrubber tower in **claim 10**, it would be obvious to place the feeding pipe inside the gas scrubbing column of Warner et al because of the rearrangement of parts. *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

Response to Arguments

(6). Applicant's arguments filed on 11/10/2009 have been fully considered but they are not persuasive.

Regarding to the arguments that prior art Warner et al (US 3528220) merely disclose collecting trays 25 that drain collected scrubbing liquor into respective tanks 28. Here, Applicants respectfully assert that the collecting trays cannot be reasonable interpreted as being ring-shaped fluid storage tanks as Warner et al explicitly requires (¶ 1, page 10, Remarks).

However, the collecting trays of Warner et al (US 3528220) reads on the fluid storage tank of Applicants in view of the same usage, arrangement and shape as well.

Regarding to the arguments that prior art Nolan (US 6399030B1) is completely silent with regard to a ring-shaped fluid storage tank arranged inside a scrubber tower and arranged surrounding a central channel through which the gas that is to be cleaned can pass upwards. Accordingly, Applicants respectfully assert that the combined teachings of Warner et al and Nolan fail to establish a prima facie case of obviousness with regard to at least amended independent claim 1 (¶1, page 11, Remarks).

Art Unit: 1797

The teaching of troughs disclosed by Nolan (US 6399030B1) is combined with Warner et al (US 3528220), the courts have held that the test for obviousness is not whether the features of a 2nd reference may be bodily incorporated into the structure of primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skills in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu

Art Unit: 1797

Date: January 5, 2010

/Duane Smith/

Supervisory Patent Examiner, Art Unit 1797